ICF-SW40

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model
E Model
Australian Model
Tourist Model

SPECIFICATIONS

Circuit system:
FM: Super heterodyne
SW/MW/LW: Dual conversion super heterodyne
Frequency range:
FM: 76.00-108.00 MHz
87.50-108.00 MHz*1
SW: 3850-26100 kHz
MW: 530-1620 kHz
LW: 150-285 kHz
Intermediate frequency
FM: 10.7 MHz
SW/MW/LW: 10.7 MHz (1st)
450 kHz (2nd)
Speaker:
Approx. 66 mm (2 1/8 in.) diameter, 8 Ohms
Maximum output:
240 mW (at 10% harmonic distortion)
Output:
Ω (headphone) jack (stereo minijack) 16 Ohms
Power requirements:
DC 4.5 V, three R6 (size AA) batteries
External power source:
DC 4.5 V
Dimensions (w/h/d)
Approx. 170 x 106 x 35 mm
(6 3/4 x 4 1/4 x 1 7/16 in.) incl. projecting parts
Mass:
Approx. 410 g (14.5 oz.) incl. batteries
Supplied accessories:
Carrying case (1)
Shortwave Guide (1)

Optional accessories:
AC power adaptor AC-E45 HG*2
Car battery cord DCC-E245HG
SW/MW/LW wide-range antenna
AN-1, AN-102

Your dealer may not handle all of the above listed optional accessories. Please ask your dealer for detailed information on the optional accessories available in your country.

Design and specifications are subject to change without notice.

*1 For the Italian and Saudi Arabian models only.
*2 The operating voltage for the AC power adaptor's depending upon the country in which it is sold. Therefore, purchase the AC power adaptor in the country you intend to use it.

FM STEREO/SW/MW/LW
PLL SYNTHESIZED RECEIVER

SONY®

MICROFILM

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Features

- FM stereo/SW/MW/LW portable receiver with worldwide band coverage
- Quartz-controlled PLL (Phase Locked Loop) synthesizer system using a microcomputer for easy pinpoint tuning
- Presetting of up to 20 stations for quick tuning
- Dual timer standby function to receive your favorite broadcast at the desired time
- Sleep timer to turn the radio off automatically after a specified number of minutes
- FM stereo reception through stereo headphones (not supplied)

SERVICING NOTE

Flexible Circuit Board Repairing

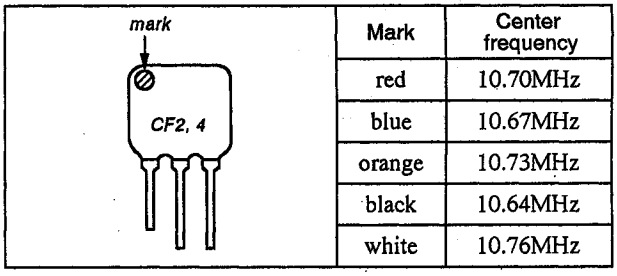
- Keep the temperature of the soldering iron around 270℃ during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

• HOW TO CHANGE THE CERAMIC FILTERS

This model is used two ceramic filters of CF2, CF4.
You must use same type of color marked ceramic filters in order to meet same specifications.
Therefore, the ceramic filter must change two pieces together since it's supply two pieces in one package as a spare parts.

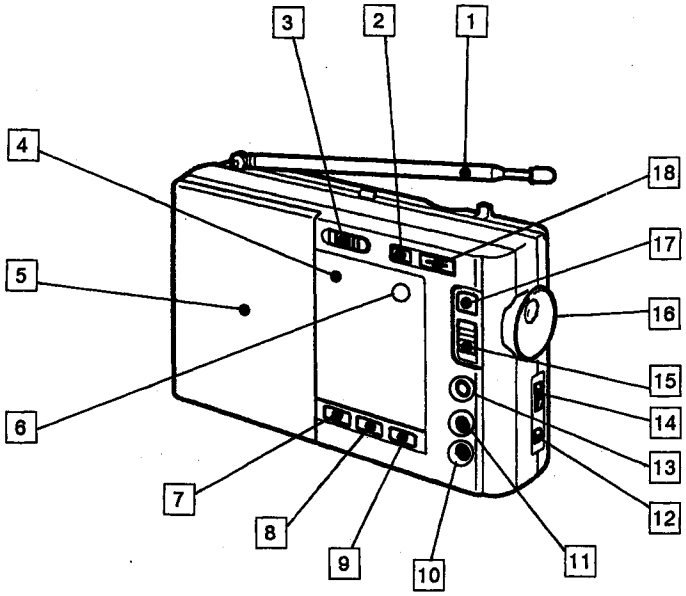


Mark	Center frequency
red	10.70MHz
blue	10.67MHz
orange	10.73MHz
black	10.64MHz
white	10.76MHz

SECTION 1
GENERAL

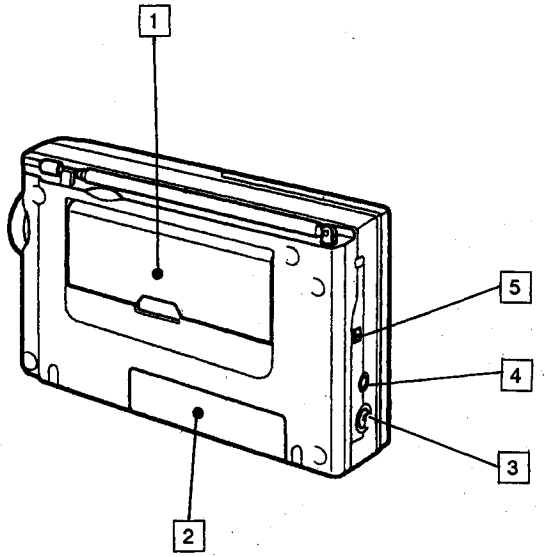
1-1. LOCATION OF CONTROLS

Front, Right Side



1 Telescopic antenna
2 SLEEP button
3 HOLD → button
4 Display window
5 Speaker
6 TUNE (tuning) indicator
7 SW button
8 LW/MW button
9 FM button
10 ENTER /CLOCK button
11 DISPLAY MODE button
12 TONE (NEWS ↔ MUSIC) selector knob
13 LIGHT button
14 VOL knob
15 NORMAL /FINE selector knob
16 TUNING/TIME ADJ knob
17 PRESET/MANUAL button
18 POWER ON/OFF button

Rear, Left Side



1 Stand
2 Battery compartment
3 DC IN 4.5V ⟐⊖⊕⟐ (external power input) jack
4 ∩ (phones) jack (stereo mini)
5 SENS (DX ↔ LOCAL) knob

Operating the Radio

Before operating the radio, make sure of your location. If in North or South America, the MW Channel Step must be changed.
- Refer to "Changing the MW Channel Step" when changing the MW tuning frequency step.

Manual tuning

1 Press **POWER** to turn on the radio.
2 Press either **SW, LW/MW,** or **FM** to select the desired band.
Each time **SW** is pressed, the indicator moves up one meter band.
3 Turn the **TUNING/TIME ADJ** control to tune in the desired station.
The indicator moves in accordance with the frequency number, enabling you to use it to select the station.
When a broadcast is received, the red **TUNE** lamp is illuminated.
4 Turn the **VOL** control to adjust the volume.

To turn off the radio, press **POWER**.

About tuning step

The frequency step employed by the **TUNING/TIME ADJ** control to tune in stations can be changed with the **NORMAL/FINE** selector. The selector should usually be set to **NORMAL**. Switching to **FINE** permits finer tuning.

NORMAL: The tuning step is 9 kHz for LW, 9 kHz (or 10 kHz) for MW and 5 kHz for SW. The step for FM is 0.1 MHz. The steps widen when the control is turned quickly.
FINE: The tuning step for LW/MW and SW is 1 kHz, and that for FM is 0.05 MHz. The steps widen when the control is turned quickly.

- To enjoy FM stereo reception, plug the stereo headphones to the ∩ (headphones) jack.
- When listening to news, set the **TONE** selector to **NEWS** for optimum results. Vocal output will be sharper and clearer. When listening to music, set it to **MUSIC** for optimum results.
- When interference is prevalent during reception, set the **SENS DX•LOCAL** selector to **LOCAL**. Under normal conditions, set it to **DX**.
- Reception of around 10250 kHz and 20500 kHz may be difficult because of extraneous internal signals generated by the built-in oscillators.

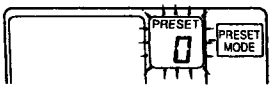
Preset tuning

This unit is factory-preset with 20 stations. You can preset up to 20 stations by assigning your favorite stations to the preset numbers 0 to 19.

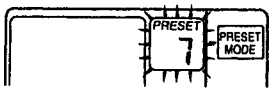
Presetting stations

1 Manually tune in the station you wish to preset.
Refer to "Manual tuning" for more details.

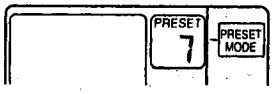
2 Press and hold **ENTER/CLOCK** until you hear a beep and the preset number starts flashing.



3 Turn the **TUNING/TIME ADJ** control until the preset number (0 to 19) under which you wish to store the selected station to is displayed.



4 Press **ENTER/CLOCK**.
A double-beep sounds and the preset number stops flashing.



To change the preset station

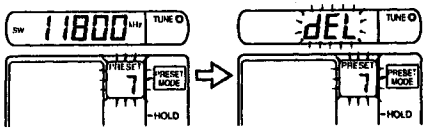
Follow the same procedure to store a new station to the selected preset number. The previous preset station is overwritten by the new preset station.
- When either **SW, LW/MW,** or **FM** is pressed in the preset tuning mode, the unit enters the manual tuning mode.
- To interrupt and cancel presetting, press **PRESET/MANUAL**. The unit will return to the manual tuning mode.
- When about 60 seconds elapse with no operation while the preset number is flashing, the unit will return to the previous indication.

Tuning in a preset station

1 Press **POWER** to turn on the radio.
2 Press **PRESET/MANUAL** if the unit is in the manual tuning mode to enter the preset tuning mode, as necessary.
3 Turn the **TUNING/TIME ADJ** control to display the preset number to which the desired station is assigned.
4 Turn the **VOL** control to adjust the volume.

Deleting a preset station

1 Press **POWER** to turn on the radio.
2 Press **PRESET/MANUAL** if the unit is in the manual tuning mode to enter the preset tuning mode, as necessry.
3 Turn the **TUNING/TIME ADJ** control to display the preset number to which the station you wish to delete is assigned.
4 Depress **ENTER/CLOCK** for more than three seconds.
After **ENTER/CLOCK** is depressed for about one second, a beep sounds and the preset number starts flashing. Release **ENTER/CLOCK** when you hear another beep and the frequency display changes to a flashing "dEL".



5 Press **ENTER/CLOCK** until a long beep sounds.

- If about 60 seconds elapse with no operation while the preset number and "dEL" are flashing, the unit will return to the previous mode.
- A preset number that has been deleted can be assigned a new station for preset tuning. Refer to "Presetting stations" for more details.
- If all preset numbers 0 to 19 have been deleted and you attempt to enter the preset tuning mode, "----" appears in the frequency display, and "PRESET" flashes for about three seconds. The unit then returns to the manual tuning mode.

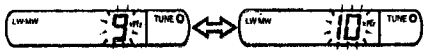
Changing the MW Channel Step

This radio's frequency channel step in the MW band is set at 9 kHz when it is shipped from the factory. Since the broadcasting channel step in North and South America is 10 kHz, however, the channel step should be changed when listening in countries in these regions.

Area	Channel step
North/South America	10 kHz
Other countries	9 kHz

To change the channel step

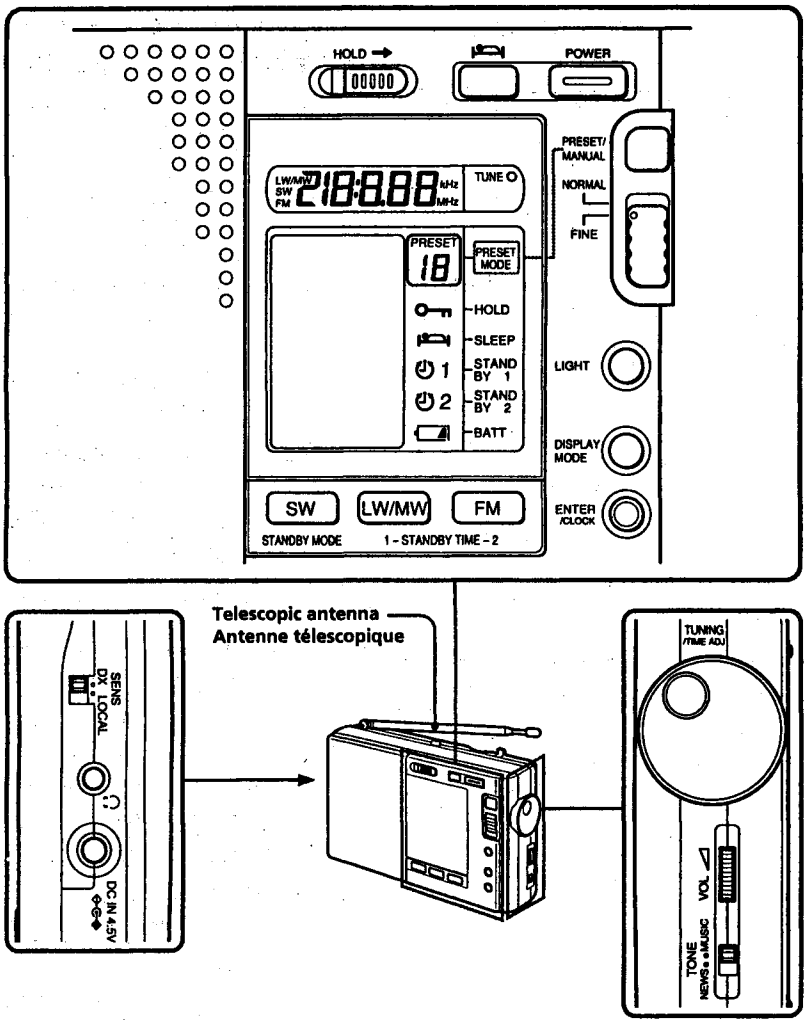
1 Press **POWER**.
2 Press **LW/MW** to receive LW/MW broadcasting.
3 Press **LW/MW** until a double-beep sounds.
The tuning step indication "10 kHz" or "9 kHz" appears, and the display returns to the former frequency indication.



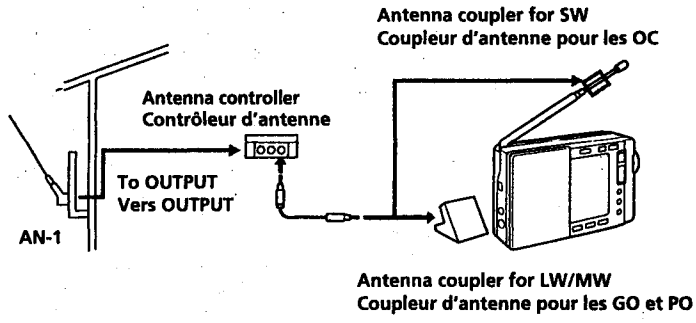
Improving reception

For FM reception

Gently pull out the telescopic antenna and adjust the length, angle and direction to obtain optimum reception.



A



For LW/MW reception

Retract the telescopic antenna and rotate the unit to reorient the built-in ferrite bar antenna to obtain optimum reception.

For SW reception

Gently pull out the telescopic antenna to its full length and set it vertically to obtain optimum reception.

Using an external antenna for SW and LW/MW reception (see Fig. A)

Use a wide-range antenna AN-1 or AN-102 (not supplied).

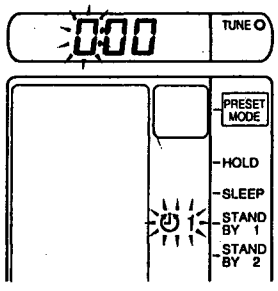
1 Use the connecting cord to connect the antenna controller **OUTPUT** jack to the antenna coupler **INPUT** jack.
2 For SW reception, attach the antenna coupler to the telescopic antenna. For LW/MW reception, position the antenna coupler near the unit, where LW/MW reception is optimal.

- Keep the unit and antenna away from fluorescent lights, televisions, computers, and other equipment which may generate noise.
- Retract the telescopic antenna when using an external antenna.
- Set up the external antenna as far away from the street as possible.
- For more details on the external antenna, refer to the antenna Operating Instructions.

Setting the standby

You can turn on the radio and tune in your favorite station at the desired time with the dual standby function (Standby 1 and Standby 2). Before you set the standby, assign the station to which you wish to listen at the desired time for Standby 1 to preset number 1. Similarly, assign the station to which you wish to listen at another desired time for Standby 2 to preset number 2. Refer to "Presetting stations" for more details.

1 If the radio is operating, press **DISPLAY MODE** to display the clock.
2 Press **LW/MW•STANDBY TIME 1** for Standby 1 and **FM•STANDBY TIME 2** for Standby 2 for more than one second until you hear a beep. In this display mode, the hour and "⏻1" (or "⏻2") start flashing.



3 Turn the **TUNING/TIME ADJ** control until the desired hour is displayed.
4 Press **LW/MW•STANDBY TIME 1** (or **FM•STANDBY TIME 2**) to set the desired minute.

5 Turn the **TUNING/TIME ADJ** control until the desired minute is displayed.

6 Press **LW/MW•STANDBY TIME 1** (or **FM•STANDBY TIME 2**)
The minute stops flashing, and a few seconds later, " ⏻ 1 " (or " ⏻ 2 ") stops flashing and remains in the display while the unit returns to the clock display.

To set/cancel standby mode or confirm the standby time

Each time **STANDBY MODE** is pressed, the display changes in the following order.

⏻ 1 * → ⏻ 2 * → ⏻ 1 ⏻ 2 → (None)

* The display will be flashing initially. Only while the display is flashing, the preset standby time will be displayed to allow checking of the standby time for Standby 1 or Standby 2.

- When the standby time arrives and standby is activated, the radio turns on. The unit will then turn off automatically after 60 minutes.
  To turn off the radio before 60 minutes have elapse, press **POWER**.
- When you have set Standby 1 and Standby 2, and a second preset standby time arrives while the first standby function is operating, the most recent standby function will have priority over the other and tune in the appropriate station.
- When identical standby times are set for Standby 1 and Standby 2, only Standby 1 is operational.
- To cancel the standby function temporarily, slide **HOLD** to the right to display "o-n" while the radio is turned off. When the hold function is canceled and "o-n" disappears, the standby function is operational.

Activating the buzzer

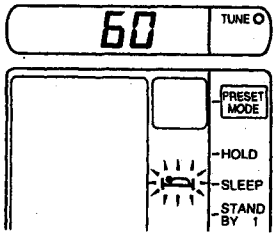
To activate the buzzer instead of the radio at the desired time, delete the station assigned to either preset number 1 or preset number 2 as necessary. Refer to "Deleting a preset station" for further details.
To stop the buzzer, press any button. The buzzer will sound continuously for about 60 minutes if no button is pressed.

- The buzzer volume is not adjustable.

Setting the sleep timer

You can turn off the radio automatically after a specified number of minutes (60, 30, or 15 minutes) with the sleep timer.

1 Press 🛏 (Sleep).
The radio turns on and the duration of "60" minutes and 🛏 flash.



2 Press 🛏 repeatedly to select the desired duration for the sleep timer.

60 (minutes) → 30 → 15 →

After about three seconds, the unit returns to the frequency display.
The sleep timer is operational.

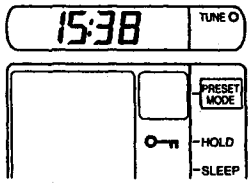
- To reset or extend the duration, press 🛏 and select the desired duration as shown in step 2.
- To turn off the radio before the selected duration elapses, press **POWER**.

Using other functions

Hold function

When the hold function is used, neither the buttons nor the **TUNING/TIME ADJ** control are operational. Use the hold function to prevent accidental operation. The hold function can also be used to cancel the standby function temporarily.

1 Slide **HOLD** in the direction of the arrow.
"o-n" appears on the display and all buttons and the **TUNING/TIME ADJ** control cease to be operational.



- To cancel the hold function, slide **HOLD** to the left.

To cancel the standby function temporarily

Slide **HOLD** to the right to display "o-n" while the radio is turned off. When the hold function is canceled and "o-n" disappears, the standby function is operational.
- When the hold function is used, the display is not illuminated.

Light function

Press **LIGHT** to turn on the light for about 15 seconds to view the display in the dark.
- If any function on the unit is performed during the light on, the light continues to turn on for longer than 15 seconds.

Setting the Clock

Set the time after you first install the batteries at which time "0:00" flashes.
- The clock is displayed in 24-hour indication. (Midnight: 0:00; noon: 12:00)
- See the map on the back of the radio for the names of representative cities throughout the world and the time differences separating them.

1 Press and hold **ENTER/CLOCK** for more than one second until you hear a beep and the hour starts flashing.

2 Turn the **TUNING/TIME ADJ** control until the correct hour is displayed.

3 Press **ENTER/CLOCK** again to set the minute.
A beep sounds and the minute starts flashing.

4 Turn the **TUNING/TIME ADJ** control until the correct minute is displayed.

5 Press **ENTER/CLOCK**.
A double-beep sounds and the minute stops flashing. The colon ":" starts flashing and the clock operates.

- When listening to the radio, press **DISPLAY MODE** to display the clock and set the time.
- To set the clock accurately, press **ENTER/CLOCK** as instructed in step 5 at the time of the tone.
- If about 60 seconds elapse with no operation, the clock setting will be aborted and the unit will return to the previous mode. In this case, repeat the procedure from step 1 to complete the clock setting.

To cancel the clock setting

Press **DISPLAY MODE**. The unit will return to the previous mode.

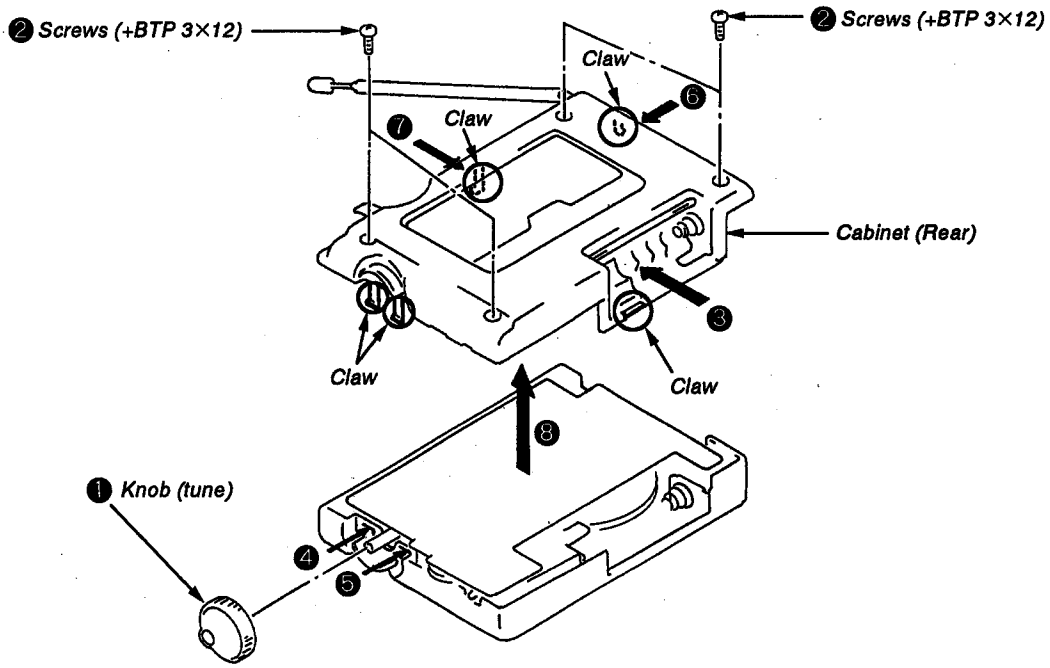
To display the clock

Press **DISPLAY MODE** while the radio is operating. The clock is displayed for about 1 minute. Pressing the button again returns the display to the frequency indication.

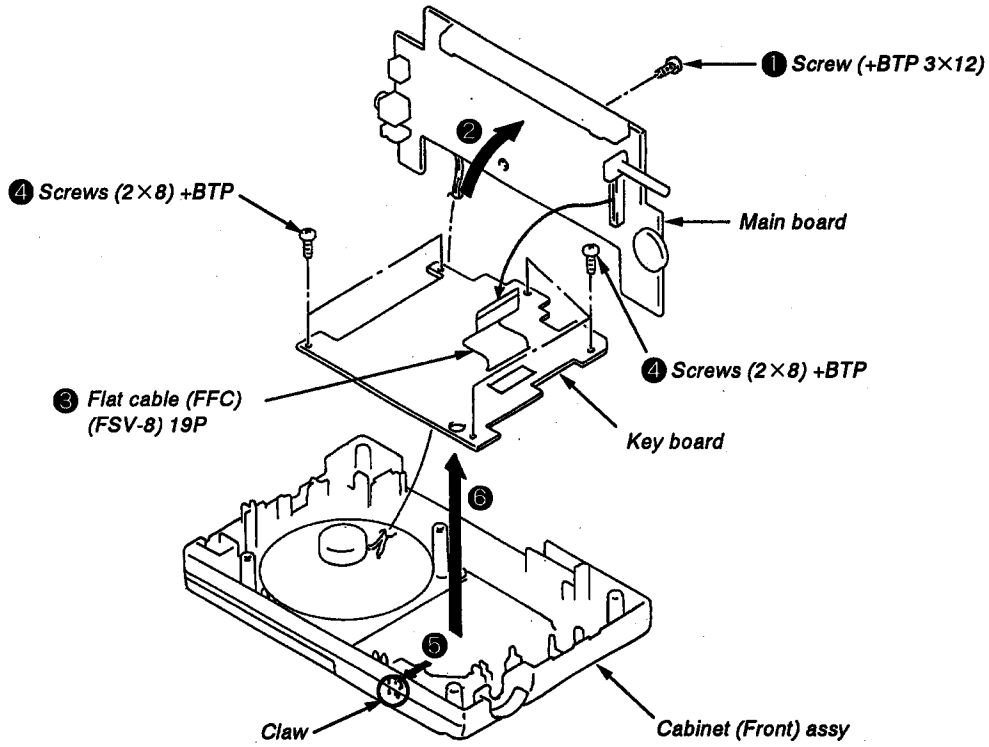
SECTION 2
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

2-1. CABINET (REAR) REMOVAL



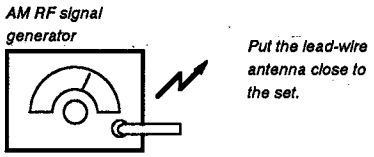
2-2. KEY BOARD AND MAIN BOARD REMOVAL



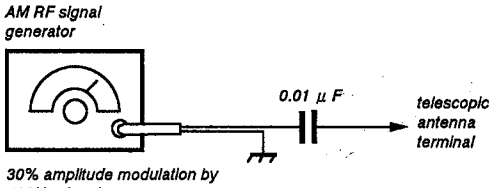
SECTION 3
ELECTRICAL ADJUSTMENTS

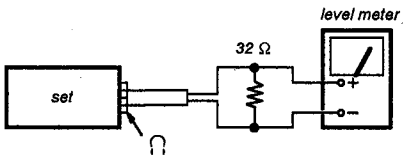
AM SECTION

LW :


AM RF signal generator
Put the lead-wire antenna close to the set.
30% amplitude modulation by 400Hz signal.
Output level : as low as possible

SW :


AM RF signal generator
0.01 μ F
telescopic antenna terminal
30% amplitude modulation by 400Hz signal.
Output level : as low as possible

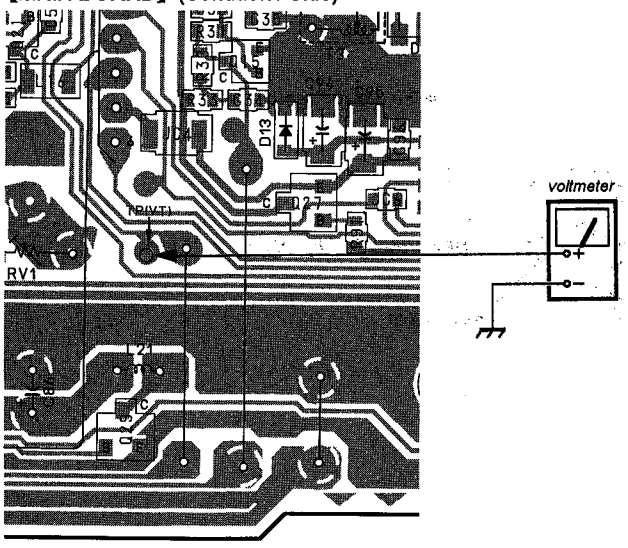


VCO Voltage Adjustment

Setting :

VOLUME : maximum
BAND : LW/SW
SENS : DX
TONE : MUSIC

【MAIN BOARD】 (Conductor Side)



Procedure :

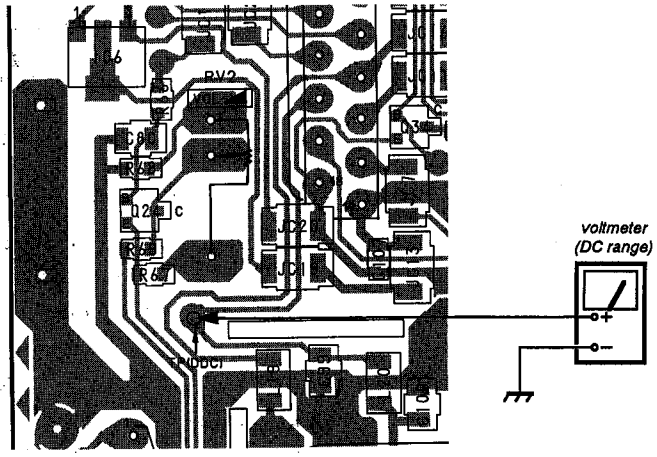
1. Tune the set to LW 150kHz.
2. Adjust T3 to obtain a 1.1 – 1.3V on the voltmeter.
3. Tune the set to SW 261,000kHz.
4. Confirm that the voltage reading on the voltmeter is 7.0 – 9.0V.

AM IF Adjustment

Setting :

VOLUME : maximum
BAND : SW

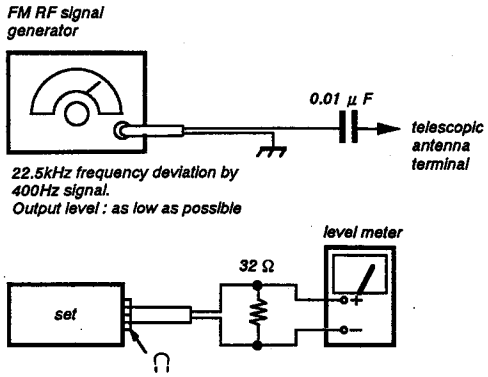
【MAIN BOARD】 (Conductor Side)



Procedure :

1. Set the frequencies of the AM RF SG and the frequency display of the set to SW 3,850kHz.
2. Confirm that the voltage reading on the voltmeter is 11.5 – 14.5V.
3. Adjust T1 and T4 maximum output level.

FM SECTION



- Repeat the procedures in each adjustment several times, and the tracking adjustments should be finally done by the trimmer capacitors.

VCO Voltage Check

Note : 1) This adjustment should be performed after the AM VCO voltage adjustment.
2) Test point is identical the AM VCO voltage adjustment.

Setting :
VOLUME : maximum
BAND : FM

Procedure :
1. Tune the set to 76.0MHz.
2. Confirm that the voltage reading on the voltmeter is 2.0 – 4.0V.
1. Tune the set to FM 108.0MHz.
2. Confirm that the voltage reading on the voltmeter is 8.7 – 10.7V.

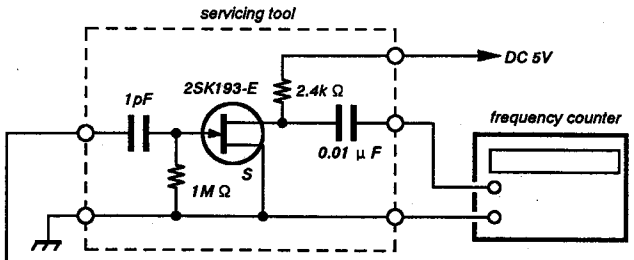
FM Tracking adjustment

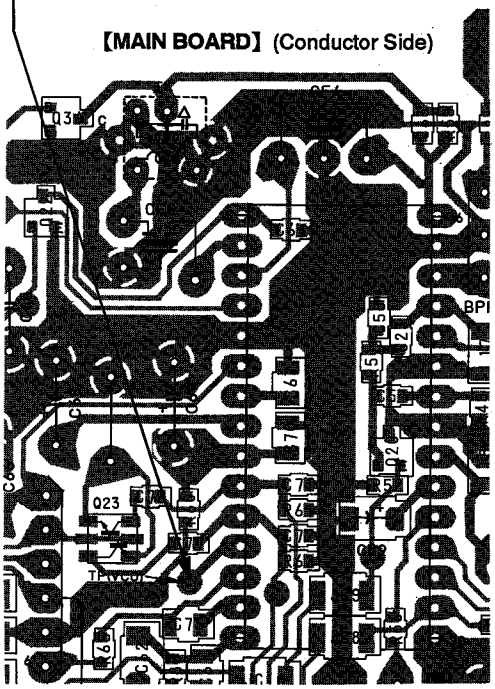
Setting :
VOLUME : maximum
BAND : FM

Procedure :
1. Set the frequencies of the FM RF SG and the frequency display of the set to 76.0MHz.
2. Adjust L13 to obtain a maximum reading on the level meter.
3. Set the frequencies of the FM RF SG and the frequency display of the set to 108.0MHz.
4. Adjust CT1 to obtain a maximum reading on the level meter.
5. Repeat the above steps several times.

FM VCO Adjustment

Setting :
VOLUME : maximum
BAND : FM

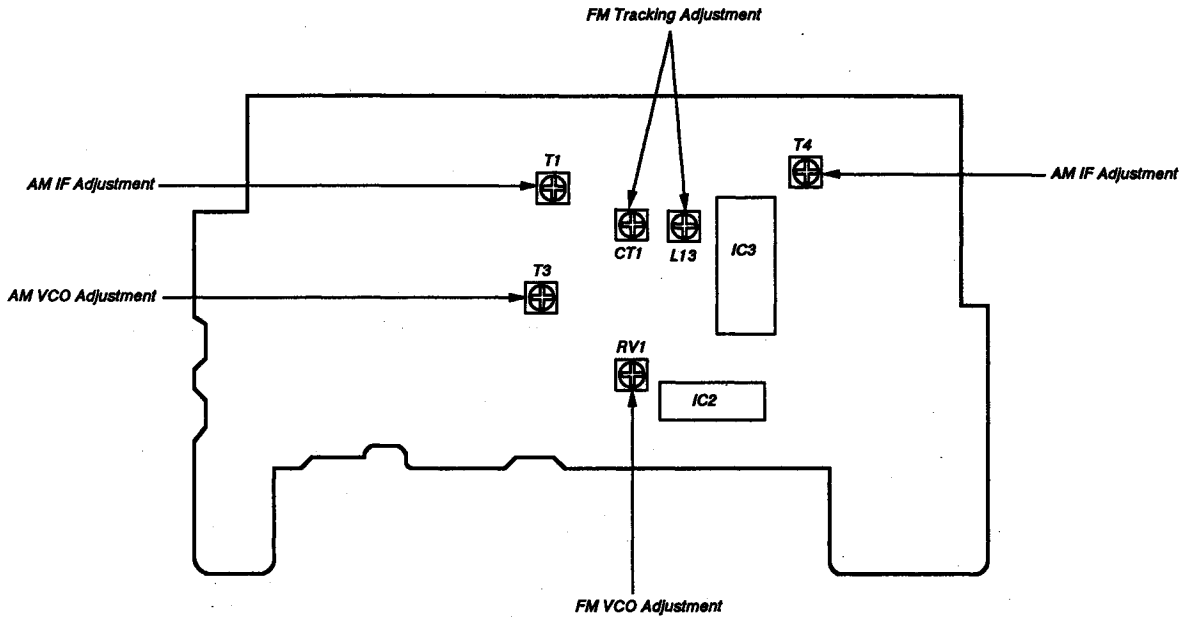




Procedure :
1. Insert the HEADPHONES into PHONES jack.
2. Connect a capacitor (10uF) between pin 21 of IC3 and Ground.
3. Tune the set to FM 98MHz.
4. Adjust RV1 to obtain 75.8 – 76.2kHz on the frequency counter.

Adjustment Location :

[MAIN BOARD] (Conductor Side)



SECTION 4
EXPLANATION OF IC TERMINALS

IC201 μPD17072GB-527-1A7 (SYSTEM CONTROL, LCD DRIVE)

Pin No.	Pin name	I/O	Description
1	KS1	O	Timing signal output for key matrix.
2	BAR/$\overline{\text{ROD}}$	O	Antenna select switch. ("H" : Ferrite-Rod "L" : Telescope)
3	BAND (FM/AM)	O	Band select switch. ("H" : AM, "L" : FM)
4	H/$\overline{\text{L}}$	O	Frequency select switch. ("H" : HI, "L" : Low)
5	MUTE	O	Mute signal output. ("L" : MUTE)
6	PWER AUDIO	O	Audio power ON. ("H" : Audio ON)
7	POWER TUNER	O	Tuner power ON. ("H" : Tuner ON)
8	KS2	O	Timing signal output for key matrix.
9	KS3	O	Timing signal output for key matrix.
10	KR1	I	Key return input.
11	KR2	I	Key return input.
12	KR3	I	Key return input.
13	SIMUKE	I	Destination select signal input.
14	10.25M	O	Destination select signal output. ("H" : output)
15	EMCODER-DATA	I	Rotary encoder data input B.
16	SEG CONT B	O	Segment select output A. ("H" : OFF)
17	SEG CONT A	O	Segment select output B. ("H" : OFF)
18	GND	–	Ground.
19	EO	O	PLL signal output.
20	VCOL (LW/MW/SW)	I	AM VCO input.
21	VCOH (FM)	I	FM VCO input.
22	VDD2	O	Connected to the regulator circuit capacitor. (PLL)
23	VDD1 (2V IN)	–	Power supply 2V.
24	XO	O	Connected to the liquid crystal oscillator.
25	XI	I	Oscillator 75kHz iquid crystals.
26	VDD5	O	Connected to the regulator circuit capacitor. (oscillator)
27	VDD3	–	Power supply for liquid crystal display drive.
28	CAP1	–	Power supply for liquid crystal display drive.
29	CAP2	–	Power supply for liquid crystal display drive.
30	VDD4	–	Power supply for liquid crystal display drive.
31	COM0	O	Liquid crystal display common signal output.
32	COM1	O	Liquid crystal display common signal output.
33	COM2	O	Liquid crystal display common signal output.
34	COM3	O	Liquid crystal display common signal output.
35	LCD0	O	Liquid crystal display segment signal output.

Pin No.	Pin name	I/O	Description
36	LCD1	O	Liquid crystal display segment signal output.
37	LCD2	O	Liquid crystal display segment signal output.
38	LCD3	O	Liquid crystal display segment signal output.
39	LCD4	O	Liquid crystal display segment signal output.
40	LCD5	O	Liquid crystal display segment signal output.
41	LCD6	O	Liquid crystal display segment signal output.
42	LCD7	O	Liquid crystal display segment signal output.
43	LCD8	O	Liquid crystal display segment signal output.
44	LCD9	O	Liquid crystal display segment signal output.
45	LCD10	O	Liquid crystal display segment signal output.
46	LCD11	O	Liquid crystal display segment signal output.
47	LCD12	O	Liquid crystal display segment signal output.
48	LCD13	O	Liquid crystal display segment signal output.
49	LCD14	O	Liquid crystal display segment signal output.
50	CE	I	Reset signal input. ("L" : Reset)
51	ENCODER-CLOCK	I	Rotary encoder data input A.
52	BEEP	O	Beep signal output.
53	VDET	I	Voltage detect.
54	LIGHT	O	Light signal output. ("H" : ON)
55	HOLD	I	Hold switch signal input. ("H" : Unhold, "L" : Hold)
56	DIAL STEP	I	Dial speed select switch input. ("H" : Fast, "L" : Slow)

SECTION 5
DIAGRAMS

5-1. PRINTED WIRING BOARDS

● SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location
D1	D-23	Q8	D-20
D2	C-21	Q10	F-19
D3	C-19	Q11	D-21
D4	C-19	Q12	E-19
D5	C-18	Q13	E-19
D6	D-18	Q14	D-19
D7	D-18	Q15	E-17
D8	E-18	Q16	E-17
D9	D-12	Q17	D-18
D10	E-17	Q18	D-17
D11	D-17	Q19	D-17
D12	D-16	Q20	D-15
D13	E-18	Q21	E-16
D14	H-13	Q22	C-13
D15	G-13	Q23	E-14
D16	H-23	Q24	F-12
D17	G-22	Q25	E-23
D18	G-20	Q26	E-19
D201	G-4	Q27	F-18
D202	H-4	Q28	G-20
D203	B-8	Q29	G-17
D204	C-5	Q30	G-20
		Q31	H-13
		Q32	H-13
IC1	F-18	Q33	G-20
IC2	F-15		
IC3	D-15	Q34	F-13
IC4	D-12	Q35	E-19
IC5	E-12	Q36	C-13
		Q201	G-6
IC6	E-11	Q202	F-6
IC201	E-7		
IC202	D-7	Q203	F-6
IC203	C-7	Q204	D-4
IC204	G-4	Q205	G-7
		Q206	G-8
		Q207	C-8
Q2	C-20		
Q3	C-18	Q208	F-8
Q4	C-16		
Q5	E-20		
Q6	E-20		

Note:

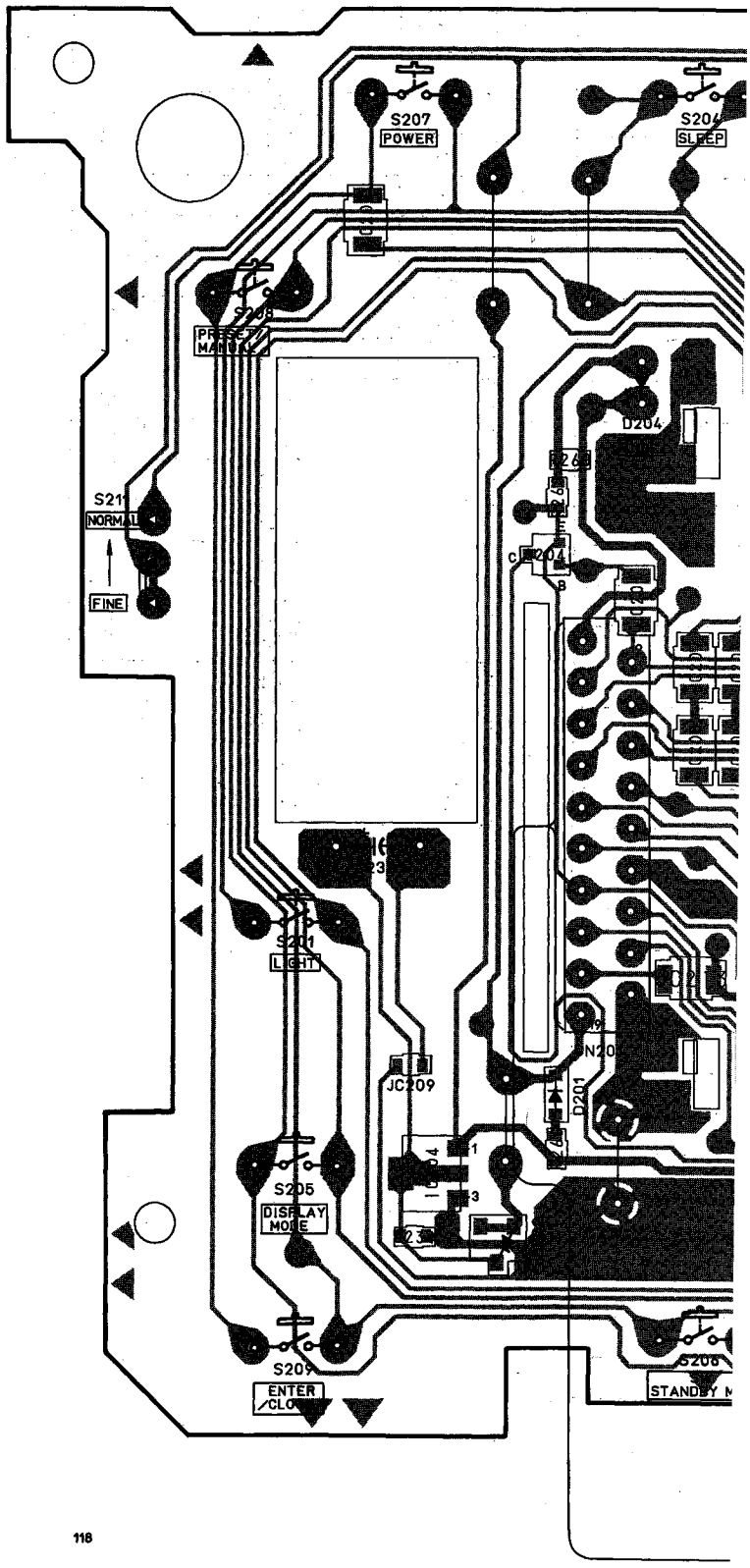
- O— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- △ : internal component.
- ▒▒ : Pattern from the side which enables seeing. (The other layers' patterns are not indicated)

Caution :

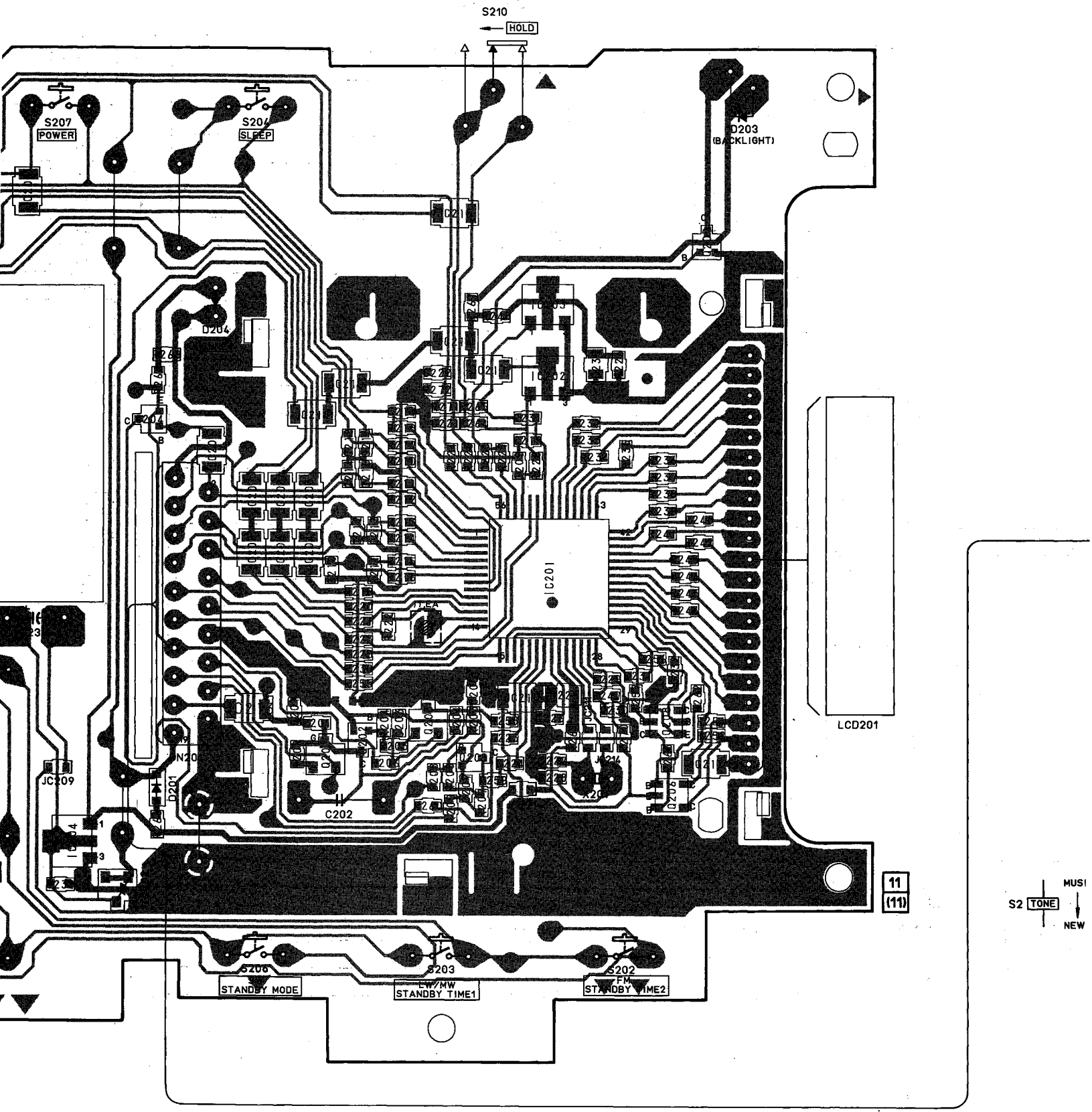
Pattern face side : (Conductor Side) Parts on the pattern face side seen from the pattern face are indicated.
Parts face side : (Component side) Parts on the parts face side seen from the parts face are indicated.

- Abbreviation
  IT : Italian
  EA : Saudi Arabia
  JE : Tourist

【KEY BOARD】

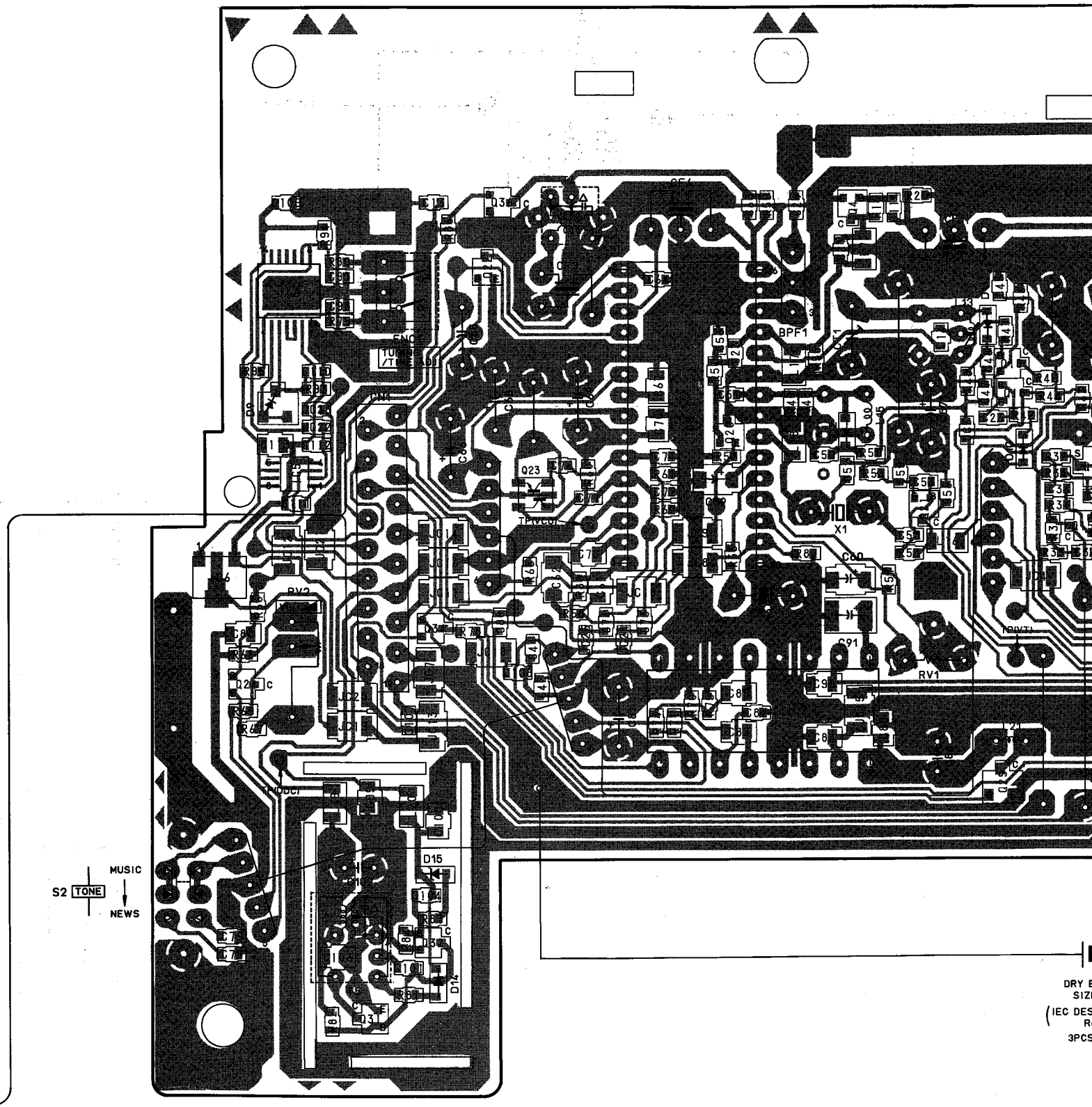


118

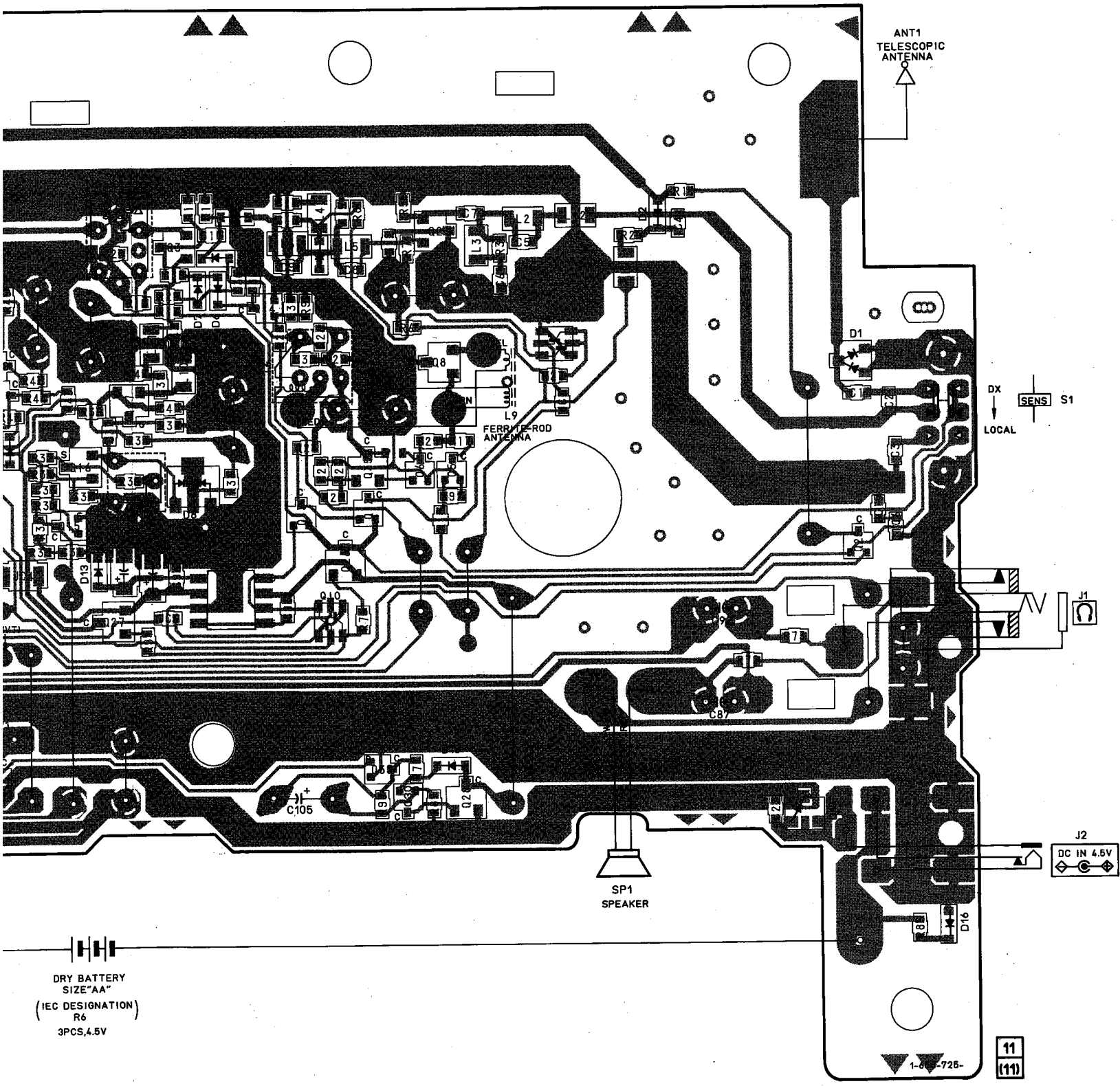

4
5
6
7
8
9
10
S210
HOLD
S207
POWER
S204
SLEEP
D203
(BACKLIGHT)
D204
IC201
LCD201
JC209
D201
C202
11
(11)
S206
STANDBY MODE
S203
LW/MW
STANDBY TIME1
S202
FM
STANDBY TIME2
S2
TONE
MUSI
NEW

10	11	12	13	14	15	16	17

【MAIN BOARD】



17	18	19	20	21	22	23	24



5-2. SCHEMATIC DIAGRAM

● Refer to page 21 for IC Block Diagrams.

【MAIN BOARD】

【KEY BOARD】

● WAVEFORM

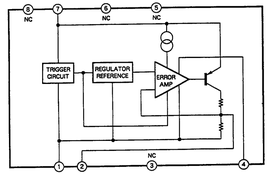
1.8Vp-p 75kHz
IC201 ㉘

Note :

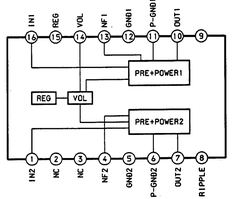
- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- % : indicates tolerance.
- Δ : internal component.
- B+ : B+ Line
- : Panel designation.
- : adjustment for repair.
- Power voltage is dc 4.5V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
  ( ) : MW/LW
  < > : SW
- Voltages are taken with a VOM (Input impedance 10M Ω). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : FM
  ➡ : MW/LW
  ➡ : SW
- Abbreviation
  IT : Italian
  EA : Saudi Arabia
  JE : Tourist

● IC BLOCK DIAGRAMS

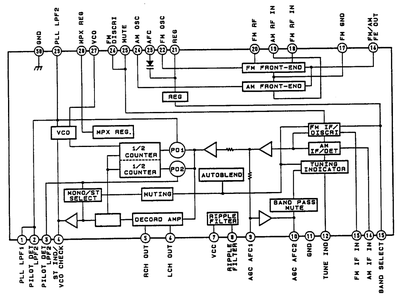
IC1 LA5002M



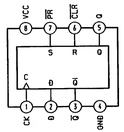
IC2 CXA1522P



IC3 CXA1238S



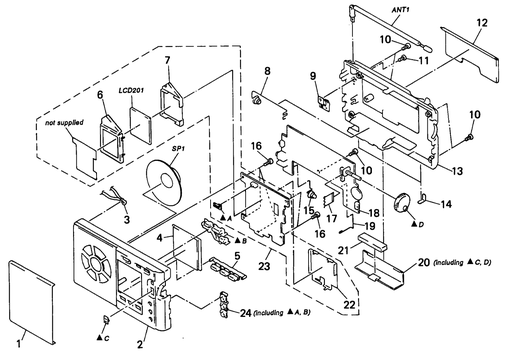
IC5 TC7W74FU



SECTION 6
EXPLODED VIEW

NOTE :

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
  AUS : Australian JE : Tourist
  EA : Saudi Arabia IT : Italian



Ref. No.	Part No.	Description	Remark
1	3-934-694-01	PANEL	
2	3-934-690-01	CABINET (FRONT)	
3	3-385-660-01	STRAP, HAND	
4	3-934-693-01	PLATE, TRANSPARENT	
5	3-934-696-01	BUTTON (BAND)	
* 6	3-934-706-01	CASE (LCD), SHIELD	
7	3-934-701-01	PLATE, LIGHT GUIDE	
8	3-934-705-01	TERMINAL (+/–), BATTERY	
9	3-383-877-01	PLATE (ANT), CONTACT	
10	7-685-548-19	SCREW +BTP 3X12 TYPE2 N-S	
11	3-370-475-11	SCREW (NYLOCK +B 3X6)	
12	3-893-839-11	STAND	
13	3-934-691-01	CABINET (REAR)	
14	3-383-881-01	FOOT, RUBBER	
15	3-934-704-01	TERMINAL (–), BATTERY	
16	3-371-765-21	SCREW (2X8), +BTP	
17	1-769-222-11	CABLE, FLAT (FFC) (FSV-8) 19P	
* 18	A-3679-755-A	MAIN BOARD, COMPLETE	
19	3-934-703-01	TERMINAL (+), BATTERY	
20	3-932-189-01	LID (COMBINED), BATTERY CASE	
21	3-935-886-01	CUSHION (BATTERY CASE LID)	
* 22	3-934-707-01	CASE (MICRO COMPUTER), SHIELD	
* 23	A-3679-754-A	KEY BOARD, COMPLETE (US,Canadian,AEP,AUS,E,JE)	
* 23	A-3679-756-A	KEY BOARD, COMPLETE (IT,EA)	
24	3-932-191-01	BUTTON (COMBINED)	
ANT1	1-501-222-81	ANTENNA, TELESCOPIC (FM)	
SP1	1-505-246-11	SPEAKER (6.6 cm)	
LCD201	1-801-196-11	DISPLAY PANEL, LIQUID CRYSTAL (US,Canadian,AEP,E,AUS,JE)	
LCD201	1-801-196-21	DISPLAY PANEL, LIQUID CRYSTAL (IT,EA)	

SECTION 7
ELECTRICAL PARTS LIST

KEY

NOTE :

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE: Metal oxide-film resistor
  F : nonflammable
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ , for example :
  uA.... : μ A...., uPA.... : μ PA....
  uPB.... : μ PB...., uPC.... : μ PC....
  uPD.... : μ PD....
- CAPACITORS
  uF : μ F
- COILS
  uH : μ H
- Abbreviation
  AUS : Australian JE : Tourist
  EA : Saudi Arabia IT : Italian
  AEP1: Countries except for German,Austrian,Scandinavian countries.
  AEP2: German,Austrian,Scandinavian countries.

Ref. No.	Part No.	Description			Remark
*	A-3679-754-A	KEY BOARD, COMPLETE (US,Canadian,AEP,E,AUS,JE)			
*	A-3679-756-A	KEY BOARD, COMPLETE (IT,EA)			
		**********			
	3-934-701-01	PLATE, LIGHT GUIDE			
*	3-934-706-01	CASE (LCD), SHIELD			
*	3-934-707-01	CASE (MICRO COMPUTER), SHIELD			
		< CAPACITOR >			
C201	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V	
C202	1-136-177-00	FILM	1uF	5% 50V	
C203	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V	
C204	1-162-962-11	CERAMIC CHIP	470PF	10% 50V	
C205	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C207	1-162-905-11	CERAMIC CHIP	1PF	0.25PF 50V	
C208	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V	
C209	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C210	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C211	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C212	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C213	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C214	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C215	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C216	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C217	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C218	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C219	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C220	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C221	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C222	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C223	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V	
C224	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C225	1-164-346-11	CERAMIC CHIP	1uF	16V	
C226	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C227	1-162-925-11	CERAMIC CHIP	68PF	5% 50V	
C228	1-164-185-11	CERAMIC CHIP	13PF	5% 50V	
C229	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C230	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C231	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V	
C232	1-164-156-11	CERAMIC CHIP	0.1uF	25V	
C233	1-126-166-11	ELECT	2200uF	5.5V	
C234	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C235	1-164-346-11	CERAMIC CHIP	1uF	16V	
		< CONNECTOR >			
CN201	1-691-650-11	SOCKET, CONNECTOR 19P			
		< DIODE >			
D201	8-719-988-62	DIODE	1SS355		
D202	8-719-941-04	DIODE	S8007-03CP		
D203	8-719-980-90	LED	SLP381F-51-AB (BACKLIGHT)		
D204	8-719-915-36	LED	SLP145B (TUNE)		
		< IC >			
IC201	8-759-394-40	IC	uPD17072GB-527-1A7		
IC202	8-759-067-57	IC	S-80732AN-DW-S		
IC203	8-759-503-28	IC	S-80727AN-DQ-S		
IC204	8-759-255-04	IC	S-81220PG-PS-T1		
		< JUMPER RESISTOR >			
JC201	1-216-296-00	METAL CHIP	0	5% 1/8W	
JC202	1-216-296-00	METAL CHIP	0	5% 1/8W	
JC203	1-216-296-00	METAL CHIP	0	5% 1/8W	
JC204	1-216-296-00	METAL CHIP	0	5% 1/8W	
JC205	1-216-296-00	METAL CHIP	0	5% 1/8W	
JC206	1-216-296-00	METAL CHIP	0	5% 1/8W	
JC207	1-216-296-00	METAL CHIP	0	5% 1/8W	
JC208	1-216-296-00	METAL CHIP	0	5% 1/8W	
JC209	1-216-864-11	METAL CHIP	0	5% 1/16W	
JC210	1-216-296-00	METAL CHIP	0	5% 1/8W	
JC211	1-216-864-11	METAL CHIP	0	5% 1/16W	
JC212	1-216-296-00	METAL CHIP	0	5% 1/8W	
JC213	1-216-296-00	METAL CHIP	0	5% 1/8W	
JC214	1-216-864-11	METAL CHIP	0	5% 1/16W	
JC215	1-216-296-00	METAL CHIP	0	5% 1/8W	

KEY

Ref. No.	Part No.	Description			Remark
JC216	1-216-296-00	METAL CHIP	0	5% 1/8W	
JC217	1-216-296-00	METAL CHIP	0	5% 1/8W	
JC218	1-216-296-00	METAL CHIP	0	5% 1/8W	
JC219	1-216-296-00	METAL CHIP	0	5% 1/8W	
JC221	1-216-864-11	METAL CHIP	0	5% 1/16W	
		< LIQUID CRYSTAL DISPLAY >			
LCD201	1-801-196-11	DISPLAY PANEL, LIQUID CRYSTAL (US,Canadian,AEP,E,AUS,JE)			
LCD201	1-801-196-21	DISPLAY PANEL, LIQUID CRYSTAL (IT,EA)			
		< TRANSISTOR >			
Q201	8-729-220-93	TRANSISTOR	2SK209-G		
Q202	8-729-230-63	TRANSISTOR	2SC4116-YG		
Q203	8-729-220-93	TRANSISTOR	2SK209-G		
Q204	8-729-028-92	TRANSISTOR	DTA144TUA-T106		
Q205	8-729-423-52	TRANSISTOR	2SC3931-C		
Q206	8-729-403-42	TRANSISTOR	XN1401		
Q207	8-729-230-63	TRANSISTOR	2SC4116-YG		
Q208	8-729-403-24	TRANSISTOR	XN4210		
		< RESISTOR >			
R201	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R202	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R203	1-216-831-11	METAL CHIP	6.8K	5% 1/16W	
R204	1-216-831-11	METAL CHIP	6.8K	5% 1/16W	
R205	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R206	1-216-809-11	METAL CHIP	100	5% 1/16W	
R207	1-216-837-11	METAL CHIP	22K	5% 1/16W	
R208	1-216-813-11	METAL CHIP	220	5% 1/16W	
R209	1-216-805-11	METAL CHIP	47	5% 1/16W	
R210	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R211	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R212	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R213	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R214	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R215	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R216	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R217	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R218	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R219	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R220	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R221	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R222	1-216-857-11	METAL CHIP	1M	5% 1/16W	
R223	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R224	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R225	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R226	1-216-857-11	METAL CHIP	1M	5% 1/16W	
R227	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R228	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R229	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R230	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R231	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R232	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R233	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R234	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R235	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R236	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R237	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R238	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R239	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R240	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R241	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R242	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R243	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R244	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R245	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R246	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R247	1-216-841-11	METAL CHIP	47K	5% 1/16W	
R248	1-216-843-11	METAL CHIP	68K	5% 1/16W	
R251	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R252	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R255	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R256	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R257	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R258	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R259	1-216-809-11	METAL CHIP	100	5% 1/16W	
R260	1-216-809-11	METAL CHIP	100	5% 1/16W	
R261	1-216-797-11	METAL CHIP	10	5% 1/16W	
R262	1-216-857-11	METAL CHIP	1M	5% 1/16W	
R263	1-216-857-11	METAL CHIP	1M	5% 1/16W	
R264	1-216-857-11	METAL CHIP	1M	5% 1/16W	
R265	1-216-857-11	METAL CHIP	1M	5% 1/16W	
R266	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R267	1-216-809-11	METAL CHIP	100	5% 1/16W	
R268	1-216-817-11	METAL CHIP	470	5% 1/16W	
R269	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R270	1-216-841-11	METAL CHIP	47K	5% 1/16W	
R271	1-216-857-11	METAL CHIP	1M	5% 1/16W	
R272	1-216-857-11	METAL CHIP	1M	5% 1/16W	
		< SWITCH >			
S201	1-571-760-11	SWITCH, KEY BOARD (LIGHT)			
S202	1-571-760-11	SWITCH, KEY BOARD (FM STANDBY TIME 2)			
S203	1-571-760-11	SWITCH, KEY BOARD (LW/MW STANDBY TIME 1)			
S204	1-571-760-11	SWITCH, KEY BOARD (SLEEP)			
S205	1-571-760-11	SWITCH, KEY BOARD (DISPLAY MODE)			
S206	1-571-760-11	SWITCH, KEY BOARD (SW,STANDBY MODE)			
S207	1-571-760-11	SWITCH, KEY BOARD (POWER)			
S208	1-571-760-11	SWITCH, KEY BOARD (PRESET/MANUAL)			
S209	1-571-760-11	SWITCH, KEY BOARD (ENTER/CLOCK)			
S210	1-553-977-00	SWITCH, SLIDE (HOLD)			
S211	1-553-510-00	SWITCH, SLIDE (NOMAL/FINE)			

Ref. No.	Part No.	Description			Remark
		< VIBRATOR >			
X201	1-567-769-11	VIBRATOR, CRYSTAL (75KHz)			
**********					
*	A-3679-755-A	MAIN BOARD, COMPLETE			
		**********			
		< FILTER >			
BPF1	1-239-507-11	FILTER, BAND PASS			
		< CAPACITOR >			
C1	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C3	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C4	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5	1-162-905-11	CERAMIC CHIP	1PF	0.25PF	50V
C6	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C7	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C8	1-162-908-11	CERAMIC CHIP	3PF	0.25PF	50V
C9	1-162-907-11	CERAMIC CHIP	2PF	0.25PF	50V
C10	1-162-911-11	CERAMIC CHIP	6PF	0.5PF	50V
C11	1-126-157-11	ELECT	10uF	20%	16V
C12	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C13	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C14	1-162-975-11	CERAMIC CHIP	24PF	5%	50V
C15	1-164-185-11	CERAMIC CHIP	13PF	5%	50V
C17	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C18	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C19	1-126-157-11	ELECT	10uF	20%	16V
C20	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C21	1-162-924-11	CERAMIC CHIP	56PF	5%	50V
C22	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C23	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C24	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C25	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C26	1-115-156-11	CERAMIC CHIP	1uF		10V
C27	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C28	1-126-157-11	ELECT	10uF	20%	16V
C29	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C30	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C31	1-115-156-11	CERAMIC CHIP	1uF		10V
C32	1-115-156-11	CERAMIC CHIP	1uF		10V
C33	1-115-156-11	CERAMIC CHIP	1uF		10V
C34	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C35	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C36	1-162-904-11	CERAMIC CHIP	0.5PF	0.25PF	50V
C37	1-162-905-11	CERAMIC CHIP	1PF	0.25PF	50V
C38	1-162-847-11	CERAMIC	0.047uF	10%	16V
C39	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C40	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V

Ref. No.	Part No.	Description			Remark
C41	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C42	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C43	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C44	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C45	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C46	1-126-157-11	ELECT	10uF	20%	16V
C47	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C48	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C49	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C50	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C51	1-162-907-11	CERAMIC CHIP	2PF	0.25PF	50V
C52	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C53	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C54	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C55	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C56	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C57	1-126-157-11	ELECT	10uF	20%	16V
C58	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C59	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C60	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C61	1-164-346-11	CERAMIC CHIP	1uF		16V
C62	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C63	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C64	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C65	1-126-154-11	ELECT	47uF	20%	6.3V
C66	1-126-163-11	ELECT	4.7uF	20%	50V
C67	1-164-346-11	CERAMIC CHIP	1uF		16V
C68	1-126-157-11	ELECT	10uF	20%	16V
C69	1-124-584-00	ELECT	100uF	20%	10V
C70	1-164-346-11	CERAMIC CHIP	1uF		16V
C71	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C72	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C73	1-115-156-11	CERAMIC CHIP	1uF		10V
C74	1-115-156-11	CERAMIC CHIP	1uF		10V
C75	1-164-346-11	CERAMIC CHIP	1uF		16V
C76	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C77	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C78	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C79	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C80	1-164-346-11	CERAMIC CHIP	1uF		16V
C81	1-126-157-11	ELECT	10uF	20%	16V
C82	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C83	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C84	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C85	1-164-346-11	CERAMIC CHIP	1uF		16V
C86	1-128-057-11	ELECT	330uF	20%	6.3V
C87	1-126-935-11	ELECT	470uF	20%	6.3V
C88	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C89	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C90	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C91	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V

MAIN

Ref. No.	Part No.	Description			Remark
C92	1-124-589-11	ELECT	47uF	20%	16V
C93	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C94	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C95	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C96	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C97	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C98	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C99	1-164-346-11	CERAMIC CHIP	1uF		16V
C100	1-164-346-11	CERAMIC CHIP	1uF		16V
C101	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C102	1-124-589-11	ELECT	47uF	20%	16V
C103	1-164-346-11	CERAMIC CHIP	1uF		16V
C104	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C105	1-126-153-11	ELECT	22uF	20%	6.3V
C106	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C107	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C108	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C109	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C110	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C111	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C112	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C113	1-164-346-11	CERAMIC CHIP	1uF		16V
C114	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
		< FILTER >			
CF1	1-577-601-11	FILTER, CERAMIC			
CF2	1-760-238-71	FILTER, CERAMIC			
CF3	1-577-687-11	FILTER, CERAMIC			
CF4	1-760-238-71	FILTER, CERAMIC			
		< CONNECTOR >			
CN1	1-691-051-21	HOUSING, CONNECTOR 19P			
		< TRIMMER >			
CT1	1-141-304-21	CAP, TRIMMER	10PF		
		< DIODE >			
D1	8-719-800-76	DIODE	1SS226		
D2	8-719-421-40	DIODE	MA77		
D3	8-719-421-40	DIODE	MA77		
D4	8-719-421-40	DIODE	MA77		
D5	8-719-421-40	DIODE	MA77		
D6	8-719-421-40	DIODE	MA77		
D7	8-719-421-40	DIODE	MA77		
D8	8-719-945-31	DIODE	SVC341-L		
D9	8-719-941-04	DIODE	SB007-03CP		
D10	8-719-988-62	DIODE	1SS355		
D11	8-719-002-81	DIODE	1T363		
D12	8-719-002-81	DIODE	1T363		
D13	8-719-988-62	DIODE	1SS355		
D14	8-719-988-62	DIODE	1SS355		
D15	8-719-977-39	DIODE	DTZ13A		

Ref. No.	Part No.	Description			Remark
D16	8-719-988-62	DIODE	1SS355		
D17	8-719-975-40	DIODE	RB411D		
D18	8-719-988-62	DIODE	1SS355		
		< ROTARY ENCODER >			
ENC1	1-473-596-11	ENCODER, ROTARY (TUNING/TIME ADJ)			
		< IC >			
IC1	8-759-804-76	IC	LA5002M		
IC2	8-752-059-51	IC	CXA1522P		
IC3	8-752-050-20	IC	CXA1238S		
IC4	8-759-079-56	IC	TC74VHC14FS(EL)		
IC5	8-759-083-94	IC	TC7W74FU		
IC6	8-759-255-04	IC	S-81220PG-PS-T1		
		< JACK >			
J1	1-566-891-11	JACK (Ω)			
J2	1-580-681-21	JACK,DC(POLARITY UNIFIED TYPE)(DC IN 4.5V)			
		< JUMPER RESISTOR >			
JC2	1-216-864-11	METAL CHIP	0	5%	1/16W
JC4	1-216-296-00	METAL CHIP	0	5%	1/8W
JC5	1-216-864-11	METAL CHIP	0	5%	1/16W
JC6	1-216-864-11	METAL CHIP	0	5%	1/16W
JC7	1-216-296-00	METAL CHIP	0	5%	1/8W
JC8	1-216-296-00	METAL CHIP	0	5%	1/8W
JC9	1-216-296-00	METAL CHIP	0	5%	1/8W
JC10	1-216-296-00	METAL CHIP	0	5%	1/8W
JC11	1-216-296-00	METAL CHIP	0	5%	1/8W
JC12	1-216-296-00	METAL CHIP	0	5%	1/8W
JC13	1-216-296-00	METAL CHIP	0	5%	1/8W
JC14	1-216-296-00	METAL CHIP	0	5%	1/8W
JC15	1-216-296-00	METAL CHIP	0	5%	1/8W
JC16	1-216-296-00	METAL CHIP	0	5%	1/8W
JC17	1-216-864-11	METAL CHIP	0	5%	1/16W
JC18	1-216-296-00	METAL CHIP	0	5%	1/8W
JC19	1-216-296-00	METAL CHIP	0	5%	1/8W
JC20	1-216-296-00	METAL CHIP	0	5%	1/8W
JC21	1-216-296-00	METAL CHIP	0	5%	1/8W
JC22	1-216-864-11	METAL CHIP	0	5%	1/16W
JC23	1-216-864-11	METAL CHIP	0	5%	1/16W
JC24	1-216-864-11	METAL CHIP	0	5%	1/16W
JC25	1-216-864-11	METAL CHIP	0	5%	1/16W
		< COIL >			
L1	1-412-939-11	INDUCTOR	1uH		
L2	1-412-938-11	INDUCTOR	0.82uH		
L3	1-412-961-11	INDUCTOR	68uH		
L4	1-412-939-11	INDUCTOR	1uH		
L5	1-412-945-11	INDUCTOR	3.3uH		
L6	1-412-947-11	INDUCTOR	4.7uH		

Ref. No.	Part No.	Description		Remark
L7	1-412-947-11	INDUCTOR	4.7uH	
L9	1-501-793-21	ANTENNA, FERRITE-ROD (LW/MW)		
L10	1-412-951-11	INDUCTOR	10uH	
L11	1-412-939-11	INDUCTOR	1uH	
L12	1-412-947-11	INDUCTOR	4.7uH	
L13	1-402-815-11	COIL (WITH CORE) (FM RF)		
L14	1-412-965-11	INDUCTOR	68nH	
L15	1-406-786-11	COIL, FM (OSC)		
L16	1-412-963-11	INDUCTOR	100uH	
L17	1-412-939-11	INDUCTOR	1uH	
L18	1-412-951-11	INDUCTOR	10uH	
L19	1-412-963-11	INDUCTOR	100uH	
L20	1-412-963-11	INDUCTOR	100uH	
L21	1-410-294-11	INDUCTOR, MICRO	38uH	
		< TRANSISTOR >		
Q2	8-729-123-86	TRANSISTOR	2SK238-K16	
Q3	8-729-116-64	TRANSISTOR	2SK508-K51	
Q4	8-729-423-52	TRANSISTOR	2SC3931-C	
Q5	8-729-423-52	TRANSISTOR	2SC3931-C	
Q6	8-729-423-52	TRANSISTOR	2SC3931-C	
Q8	8-729-123-86	TRANSISTOR	2SK238-K16	
Q10	8-729-403-24	TRANSISTOR	XN4210	
Q11	8-729-403-24	TRANSISTOR	XN4210	
Q12	8-729-028-92	TRANSISTOR	DTA144TUA-T106	
Q13	8-729-028-92	TRANSISTOR	DTA144TUA-T106	
Q14	8-729-230-63	TRANSISTOR	2SC4116-YG	
Q15	8-729-423-52	TRANSISTOR	2SC3931-C	
Q16	8-729-208-47	TRANSISTOR	2SK210-GR	
Q17	8-729-220-93	TRANSISTOR	2SK209-G	
Q18	8-729-230-63	TRANSISTOR	2SC4116-YG	
Q19	8-729-230-63	TRANSISTOR	2SC4116-YG	
Q20	8-729-423-52	TRANSISTOR	2SC3931-C	
Q21	8-729-423-52	TRANSISTOR	2SC3931-C	
Q22	8-729-029-15	TRANSISTOR	DTC144TUA-T106	
Q23	8-729-403-24	TRANSISTOR	XN4210	
Q24	8-729-028-92	TRANSISTOR	DTA144TUA-T106	
Q25	8-729-028-92	TRANSISTOR	DTA144TUA-T106	
Q26	8-729-807-87	TRANSISTOR	2SB1295-UL6	
Q27	8-729-807-87	TRANSISTOR	2SB1295-UL6	
Q28	8-729-807-87	TRANSISTOR	2SB1295-UL6	
Q29	8-729-807-87	TRANSISTOR	2SB1295-UL6	
Q30	8-729-230-63	TRANSISTOR	2SC4116-YG	
Q31	8-729-230-63	TRANSISTOR	2SC4116-YG	
Q32	8-729-230-63	TRANSISTOR	2SC4116-YG	
Q33	8-729-029-15	TRANSISTOR	DTC144TUA-T106	
Q34	8-729-029-15	TRANSISTOR	DTC144TUA-T106	
Q35	8-729-921-72	TRANSISTOR	2SD1781K-R	
Q36	8-729-423-52	TRANSISTOR	2SC3931-C	
		< RESISTOR >		
R1	1-216-821-11	METAL CHIP	1K 5% 1/16W	

Ref. No.	Part No.	Description			Remark
R2	1-216-837-11	METAL CHIP	22K	5%	1/16W
R3	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R5	1-216-845-11	METAL CHIP	100K	5%	1/16W
R6	1-216-797-11	METAL CHIP	10	5%	1/16W
R7	1-216-817-11	METAL CHIP	470	5%	1/16W
R8	1-216-837-11	METAL CHIP	22K	5%	1/16W
R9	1-216-839-11	METAL CHIP	33K	5%	1/16W
R10	1-216-837-11	METAL CHIP	22K	5%	1/16W
R11	1-216-845-11	METAL CHIP	100K	5%	1/16W
R12	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R13	1-216-809-11	METAL CHIP	100	5%	1/16W
R16	1-216-841-11	METAL CHIP	47K	5%	1/16W
R17	1-216-817-11	METAL CHIP	470	5%	1/16W
R18	1-216-845-11	METAL CHIP	100K	5%	1/16W
R20	1-216-819-11	METAL CHIP	680	5%	1/16W
R21	1-216-845-11	METAL CHIP	100K	5%	1/16W
R24	1-216-805-11	METAL CHIP	47	5%	1/16W
R25	1-216-839-11	METAL CHIP	33K	5%	1/16W
R26	1-216-817-11	METAL CHIP	470	5%	1/16W
R27	1-216-833-11	METAL CHIP	10K	5%	1/16W
R28	1-216-841-11	METAL CHIP	47K	5%	1/16W
R29	1-216-837-11	METAL CHIP	22K	5%	1/16W
R30	1-216-813-11	METAL CHIP	220	5%	1/16W
R31	1-216-837-11	METAL CHIP	22K	5%	1/16W
R32	1-216-805-11	METAL CHIP	47	5%	1/16W
R33	1-216-797-11	METAL CHIP	10	5%	1/16W
R34	1-216-797-11	METAL CHIP	10	5%	1/16W
R35	1-216-801-11	METAL CHIP	22	5%	1/16W
R36	1-216-833-11	METAL CHIP	10K	5%	1/16W
R37	1-216-833-11	METAL CHIP	10K	5%	1/16W
R38	1-216-857-11	METAL CHIP	1M	5%	1/16W
R39	1-216-809-11	METAL CHIP	100	5%	1/16W
R42	1-216-841-11	METAL CHIP	47K	5%	1/16W
R43	1-216-797-11	METAL CHIP	10	5%	1/16W
R44	1-216-835-11	METAL CHIP	15K	5%	1/16W
R45	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R46	1-216-817-11	METAL CHIP	470	5%	1/16W
R47	1-216-841-11	METAL CHIP	47K	5%	1/16W
R48	1-216-845-11	METAL CHIP	100K	5%	1/16W
R49	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R50	1-216-845-11	METAL CHIP	100K	5%	1/16W
R51	1-216-837-11	METAL CHIP	22K	5%	1/16W
R52	1-216-817-11	METAL CHIP	470	5%	1/16W
R53	1-216-841-11	METAL CHIP	47K	5%	1/16W
R54	1-216-821-11	METAL CHIP	1K	5%	1/16W
R55	1-216-819-11	METAL CHIP	680	5%	1/16W
R56	1-216-813-11	METAL CHIP	220	5%	1/16W
R57	1-216-833-11	METAL CHIP	10K	5%	1/16W
R58	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R59	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R60	1-216-797-11	METAL CHIP	10	5%	1/16W

MAIN

Ref. No.	Part No.	Description			Remark
R61	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R62	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R65	1-216-841-11	METAL CHIP	47K	5%	1/16W
R66	1-216-833-11	METAL CHIP	10K	5%	1/16W
R67	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R68	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R69	1-216-821-11	METAL CHIP	1K	5%	1/16W
R70	1-216-805-11	METAL CHIP	47	5%	1/16W
R71	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R72	1-216-809-11	METAL CHIP	100	5%	1/16W
R73	1-216-809-11	METAL CHIP	100	5%	1/16W
R74	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R75	1-216-805-11	METAL CHIP	47	5%	1/16W
R76	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R77	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R78	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R79	1-216-849-11	METAL CHIP	220K	5%	1/16W
R80	1-216-849-11	METAL CHIP	220K	5%	1/16W
R81	1-216-821-11	METAL CHIP	1K	5%	1/16W
R82	1-216-845-11	METAL CHIP	100K	5%	1/16W
R83	1-216-845-11	METAL CHIP	100K	5%	1/16W
R84	1-216-845-11	METAL CHIP	100K	5%	1/16W
R85	1-216-809-11	METAL CHIP	100	5%	1/16W
R86	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R87	1-216-849-11	METAL CHIP	220K	5%	1/16W
R88	1-216-849-11	METAL CHIP	220K	5%	1/16W
R89	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R90	1-216-841-11	METAL CHIP	47K	5%	1/16W
R91	1-216-833-11	METAL CHIP	10K	5%	1/16W
R92	1-216-845-11	METAL CHIP	100K	5%	1/16W
R93	1-216-849-11	METAL CHIP	220K	5%	1/16W
R94	1-216-857-11	METAL CHIP	1M	5%	1/16W
R95	1-216-857-11	METAL CHIP	1M	5%	1/16W
		< VARIABLE RESISTOR >			
RV1	1-241-765-11	RES, ADJ, CARBON 22K (FM VCO)			
RV2	1-223-967-11	RES, VAR, CARBON 50K (VOL)			
		< SWITCH >			
S1	1-572-552-11	SWITCH, SLIDE (SENS)			
S2	1-572-552-11	SWITCH, SLIDE (TONE)			
		< TRANSFORMER >			
T1	1-404-764-21	TRANSFORMER, IF			
T2	1-411-760-11	COIL (LW/MW RF)			
T3	1-411-761-11	COIL (OSC)			
T4	1-404-444-31	TRANSFORMER, IF			
T5	1-449-138-61	TRANSFORMER, DC-DC CONVERTER			
		< VIBRATOR >			
X1	1-760-018-21	VIBRATOR, CRYSTAL (10.25MHz)			

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Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS	
		**********	
17	1-769-222-11	CABLE, FLAT (FFC) (FSV-8) 19P	
ANT1	1-501-222-81	ANTENNA, TELESCOPIC (FM)	
LCD201	1-801-196-11	DISPLAY PANEL, LIQUID CRYSTAL	(US,Canadian,AEP,E,AUS,JE)
LCD201	1-801-196-21	DISPLAY PANEL, LIQUID CRYSTAL	(IT,EA)
SP1	1-505-246-11	SPEAKER (6.6 cm)	

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		ACCESSORIES & PACKING MATERIALS	
		**********	
	3-810-631-01	MANUAL, INSTRUCTION (ENGLISH/JAPANESE/KOREAN)	(JE)
	3-810-631-11	MANUAL, INSTRUCTION (ENGLISH/FRENCH)	(US,Canadian,AEP,E)
	3-810-631-21	MANUAL, INSTRUCTION (SPANISH/PORTUGUESE/CHINESE)	(AEP1,E)
	3-810-631-31	MANUAL, INSTRUCTION (GERMAN/DUTCH/SWEDISH)	(AEP2)
	3-810-631-41	MANUAL, INSTRUCTION (ENGLISH/ITALIAN/ARABIC)	(IT,EA)
	3-893-802-21	BOOK, GUIDE, WAVE	(JE)
	3-906-140-01	CASE, CARRYING	
	3-912-863-31	SHORT WAVE GUIDE	(US,Canadian,AEP,E,IT,EA)
	3-934-954-01	INDIVIDUAL CARTON	(JE)
	3-934-957-01	INDIVIDUAL CARTON	(US,Canadian,AEP,E,IT,EA)

9-960-640-11

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